

Spatial Pricing Patterns in Southern California Gasoline Markets

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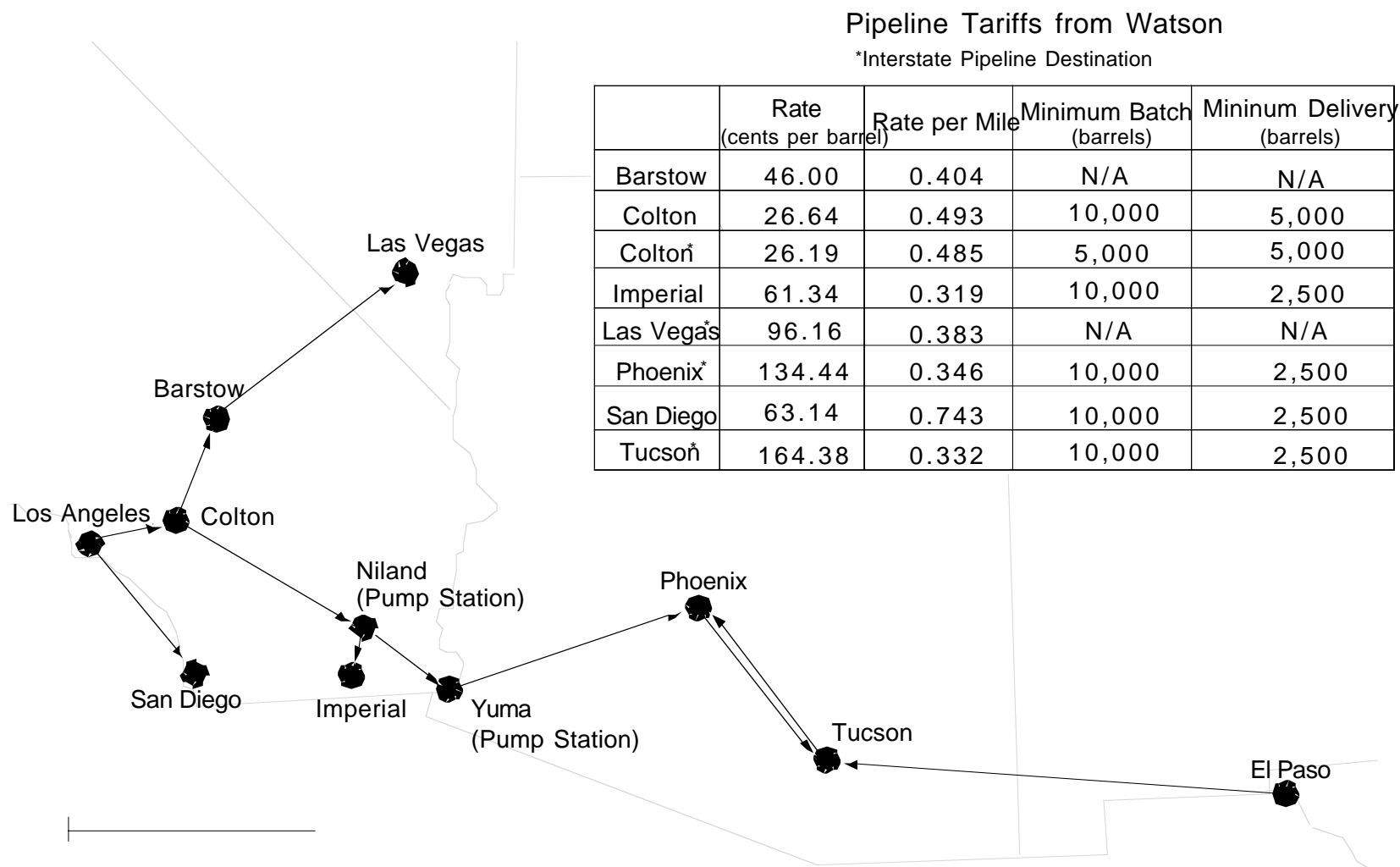
Introduction

- Proposition: Market power, especially of refineries, should reveal itself in the spatial patterns among wholesale gasoline prices.
- In some industries, market power has been observed to understate price differentials compared to transportation costs; in other industries, to overstate those differentials.
- The unstated “competitive” benchmark: Spatial differentials coincide with transportation costs.
- Proposition: Changing conditions in gasoline would change market power, and hence the spatial patterns among wholesale prices.

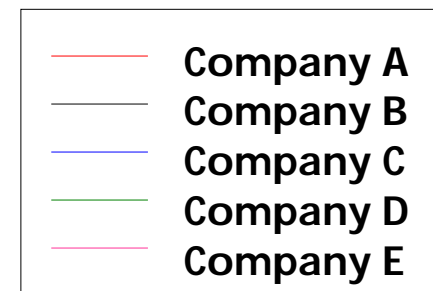
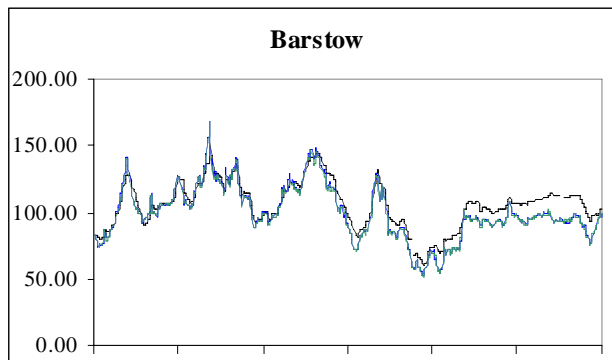
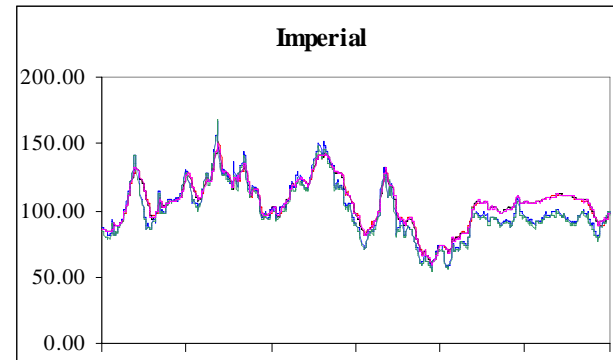
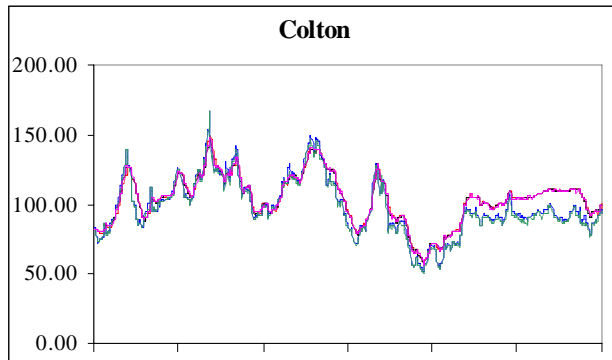
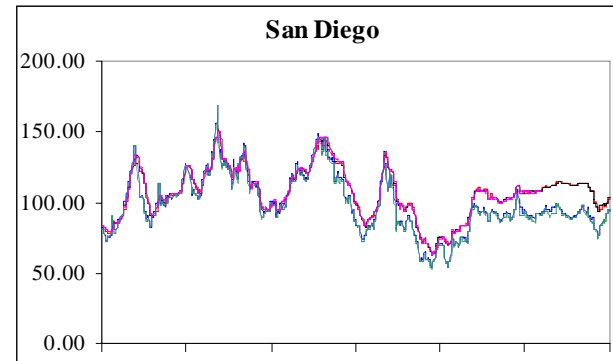
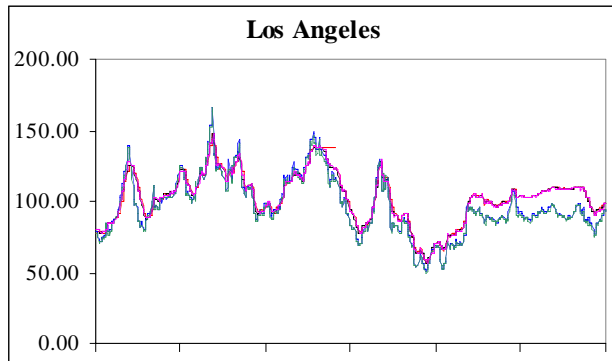
Introduction

- Application to southern California
 - OPIS-reported rack prices
 - Five locations
 - Five companies
 - 2000 through 2002
 - Pipeline break during summer 2003

Southwest Petroleum Product Infrastructure

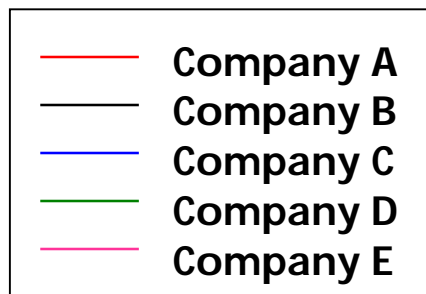
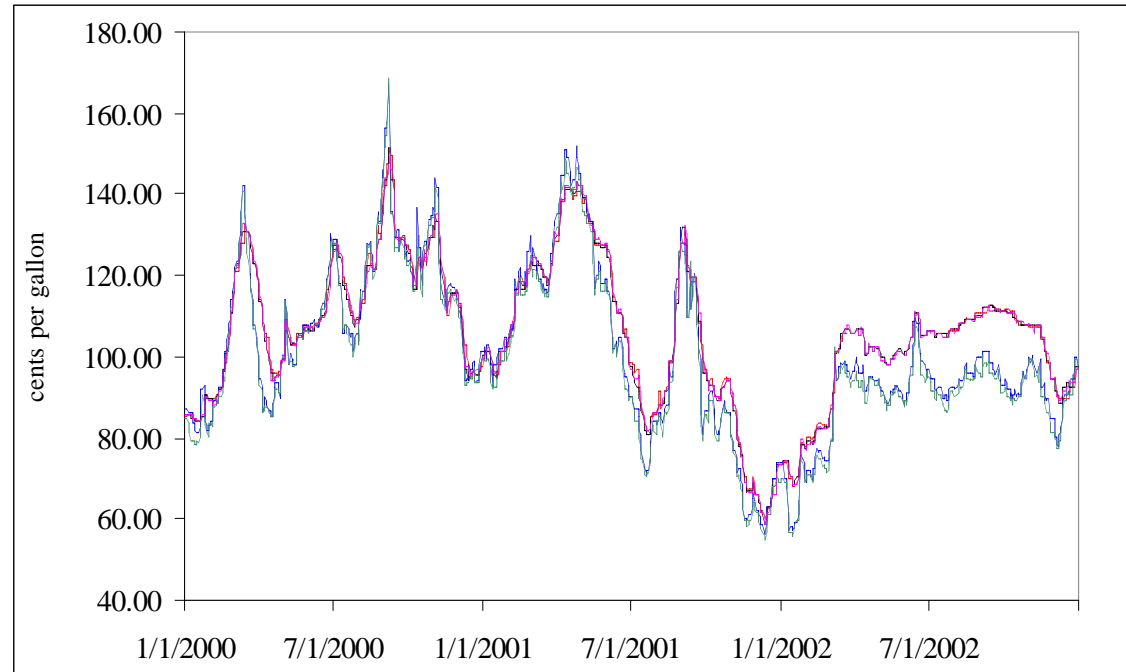


Daily Rack Prices by Location (in cents per gallon) January 1, 2000 through December 31, 2002



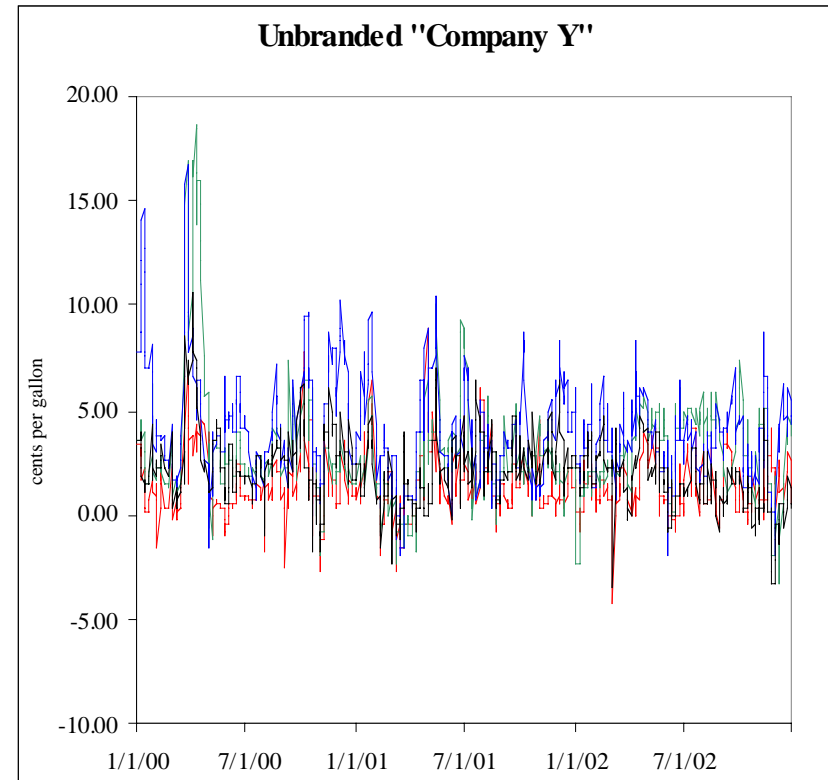
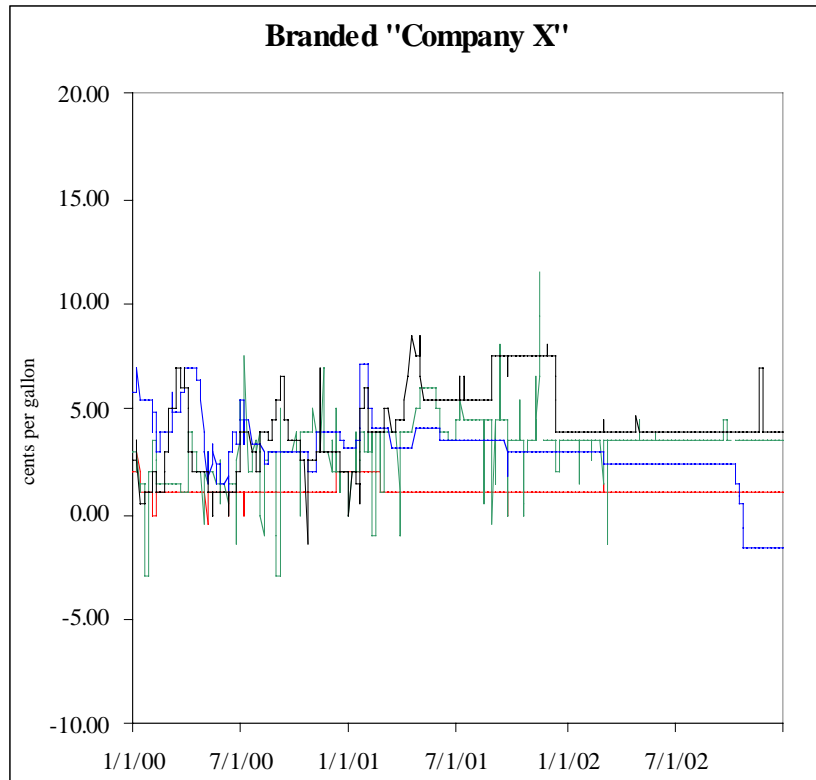
Daily Rack Prices in Imperial

January 1, 2000 through December 31, 2002



Daily Spatial Rack Price Spreads

January 1, 2000 through December 31, 2002

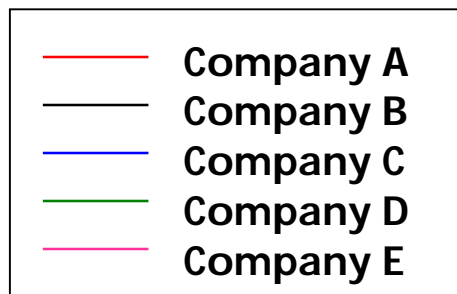
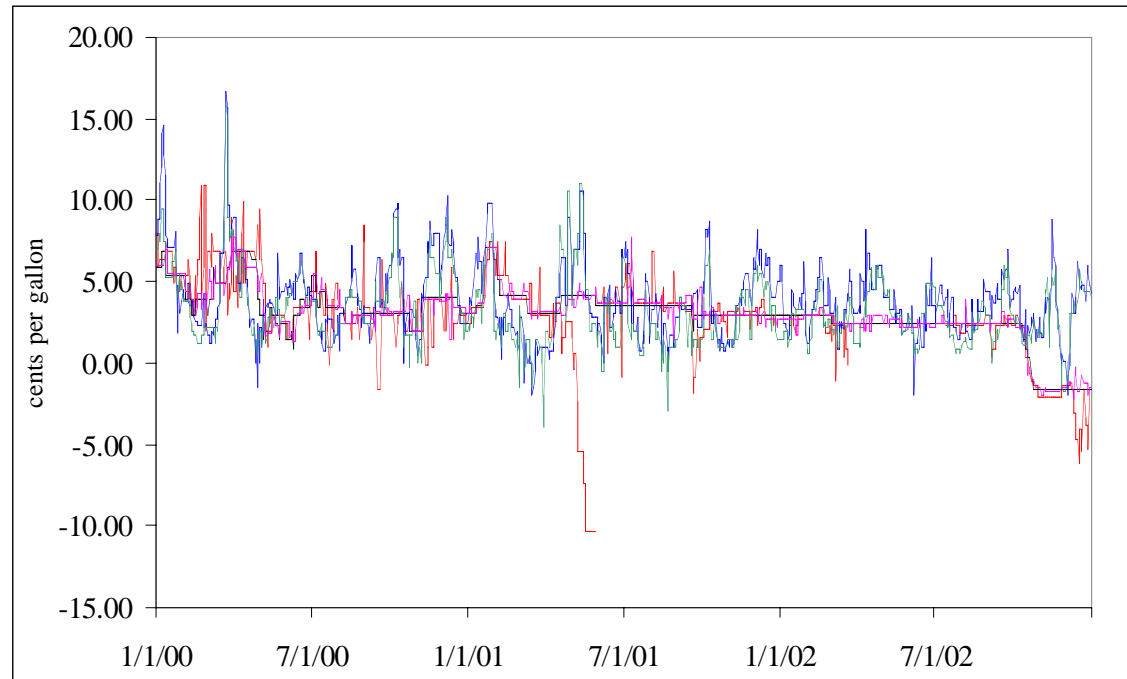


— Colton – Los Angeles
— Imperial – Los Angeles

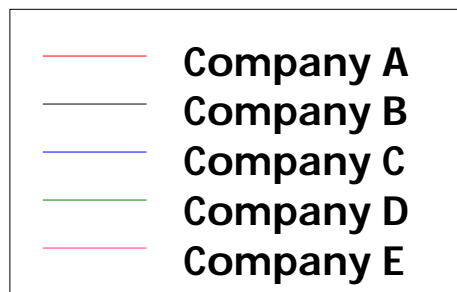
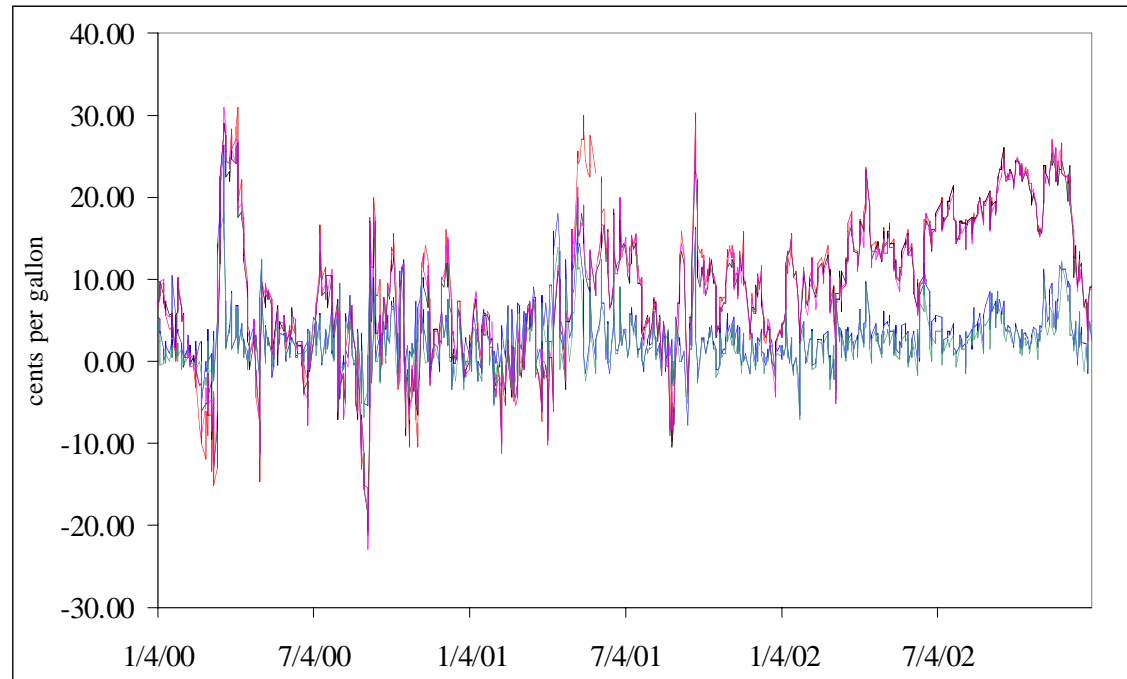
— Barstow – Los Angeles
— San Diego – Los Angeles

Imperial – Los Angeles Spatial Rack Spreads

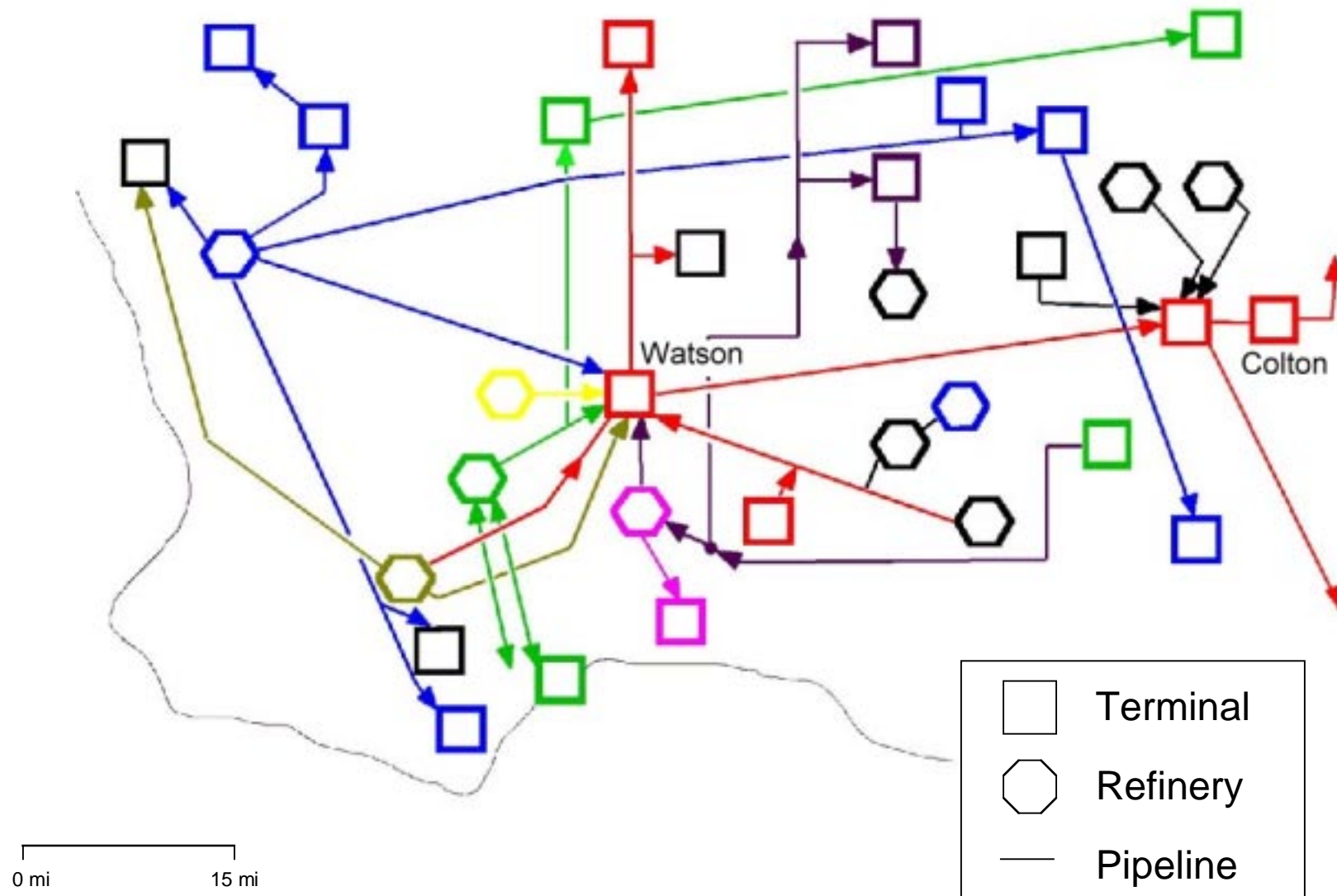
January 1, 2000 through December 31, 2002



Los Angeles Price Spreads: Rack minus Prompt January 4, 2000 through December 31, 2002



Petroleum Product Infrastructure in the Los Angeles Area



Rack Price Ending Digits

January 1, 2000 through December 31, 2002

Branded "Company X"					
Decimal	Los Angeles	Colton	Barstow	Imperial	San Diego
00	438	436	337	16	341
05	0	0	0	0	0
10	0	0	0	80	0
15	0	0	0	0	0
20	0	0	0	7	0
25	0	0	6	0	0
30	10	10	7	0	9
35	0	0	0	0	0
40	0	0	0	227	0
45	0	0	0	0	0
50	325	327	420	68	423
55	0	0	0	0	0
60	0	0	0	113	0
65	0	0	0	0	0
70	0	0	0	10	0
75	0	0	0	0	0
80	7	7	10	0	7
85	0	0	0	0	0
90	0	0	0	259	0
95	0	0	0	0	0

Unbranded "Company Y"					
Decimal	Los Angeles	Colton	Barstow	Imperial	San Diego
00	341	300	325	288	288
05	2	1	1	5	4
10	8	10	4	11	13
15	9	10	9	13	8
20	8	11	3	1	13
25	51	49	62	75	36
30	12	3	0	8	2
35	15	1	6	19	4
40	3	8	1	10	8
45	9	4	0	0	10
50	204	263	274	236	247
55	4	5	0	6	4
60	10	10	7	9	18
65	13	3	9	8	8
70	12	10	0	0	13
75	50	61	63	64	84
80	5	1	4	1	4
85	7	13	8	6	4
90	5	11	4	9	5
95	12	6	0	11	7

Day-of-Week Effects: Low Days of the Week

Branded "Company X"					
	Los Angeles	Colton	Barstow	Imperial	San Diego
Monday	28.4%	28.8%	26.4%	28.0%	28.9%
Tuesday	23.9%	23.5%	21.2%	23.9%	22.9%
Wednesday	17.0%	16.6%	17.4%	17.0%	16.3%
Thursday	15.0%	14.9%	17.7%	16.3%	16.6%
Friday	15.7%	16.2%	17.4%	14.9%	15.3%

Unbranded "Company Y"					
	Los Angeles	Colton	Barstow	Imperial	San Diego
Monday	39.1%	36.1%	37.7%	34.2%	38.8%
Tuesday	25.8%	27.2%	24.0%	22.6%	26.6%
Wednesday	13.2%	13.6%	15.1%	14.2%	11.5%
Thursday	13.2%	15.6%	15.1%	19.4%	16.5%
Friday	8.6%	7.5%	8.2%	9.7%	6.5%

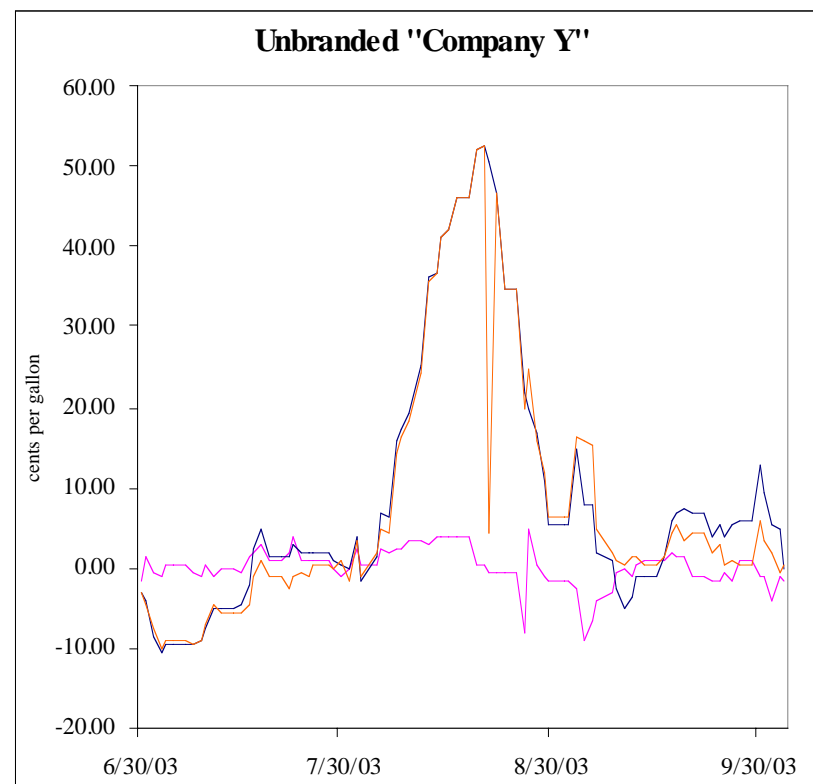
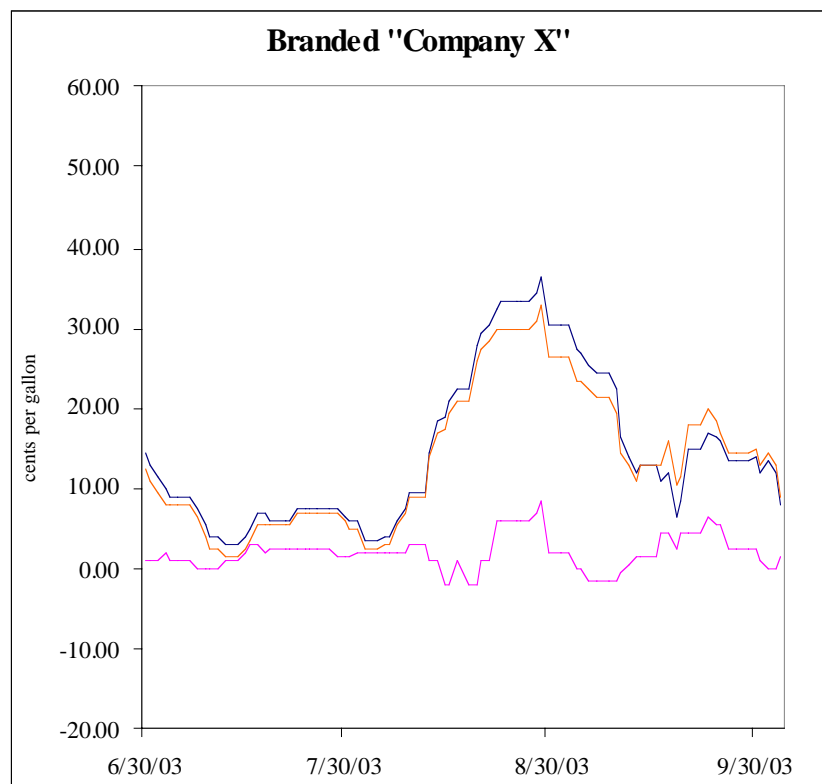
Day-of-Week Effects: Day on Which Price Was Changed

Branded "Company X"					
	Los Angeles	Colton	Barstow	Imperial	San Diego
Monday	18.5%	18.5%	16.3%	18.9%	18.8%
Tuesday	17.7%	17.8%	19.6%	17.6%	19.3%
Wednesday	19.5%	19.5%	19.6%	19.1%	20.1%
Thursday	22.8%	22.6%	24.0%	22.8%	21.6%
Friday	21.5%	21.6%	20.7%	21.6%	20.3%

Unbranded "Company Y"					
	Los Angeles	Colton	Barstow	Imperial	San Diego
Monday	18.6%	18.7%	18.2%	19.0%	18.6%
Tuesday	18.9%	19.6%	19.6%	19.0%	19.5%
Wednesday	21.5%	21.0%	21.4%	21.3%	20.5%
Thursday	20.4%	20.4%	20.3%	19.8%	20.8%
Friday	20.6%	20.2%	20.5%	20.8%	20.6%

Conventional Gasoline Spatial Rack Spreads

June 30, 2003 through October 4, 2003

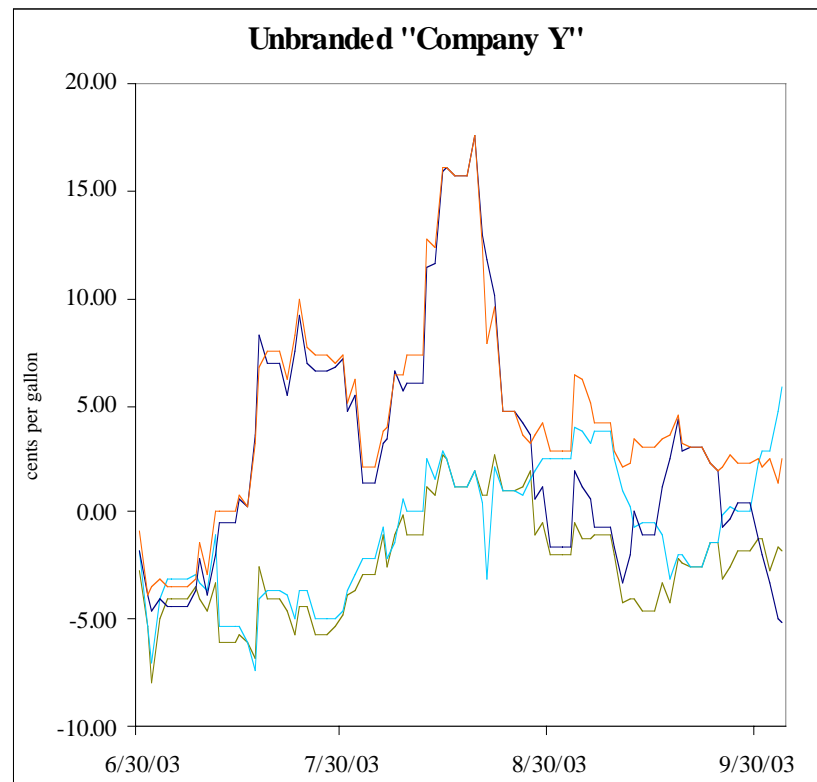
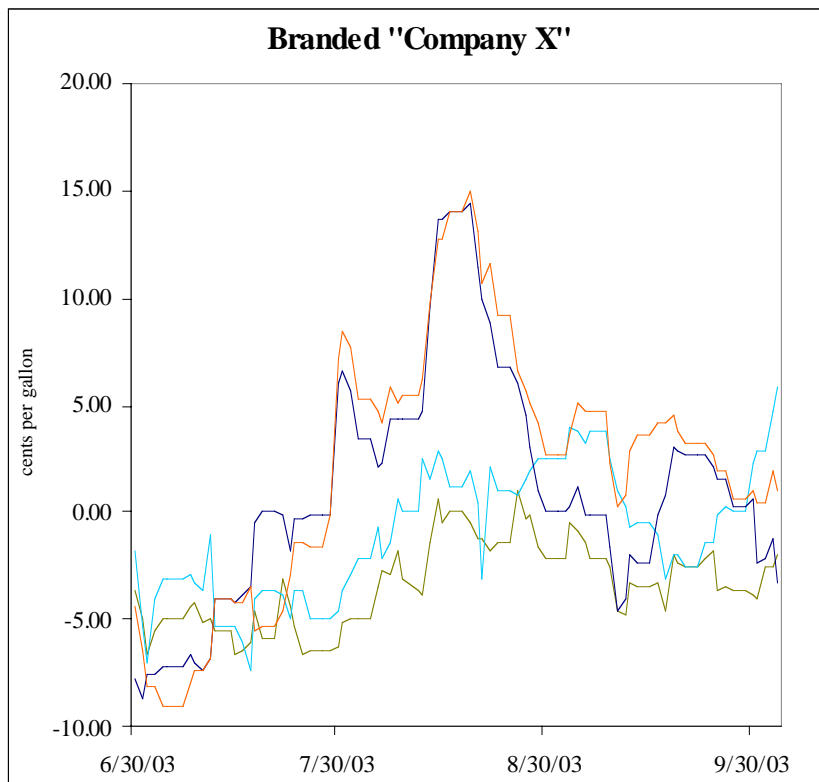


— Phoenix – Imperial
— Phoenix – El Paso

— Tucson – El Paso

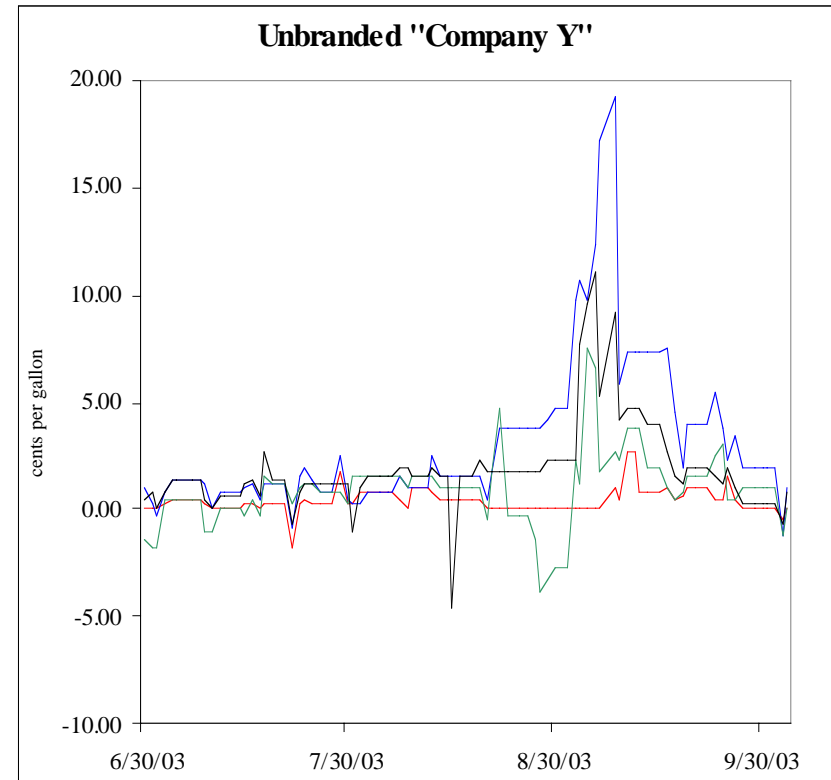
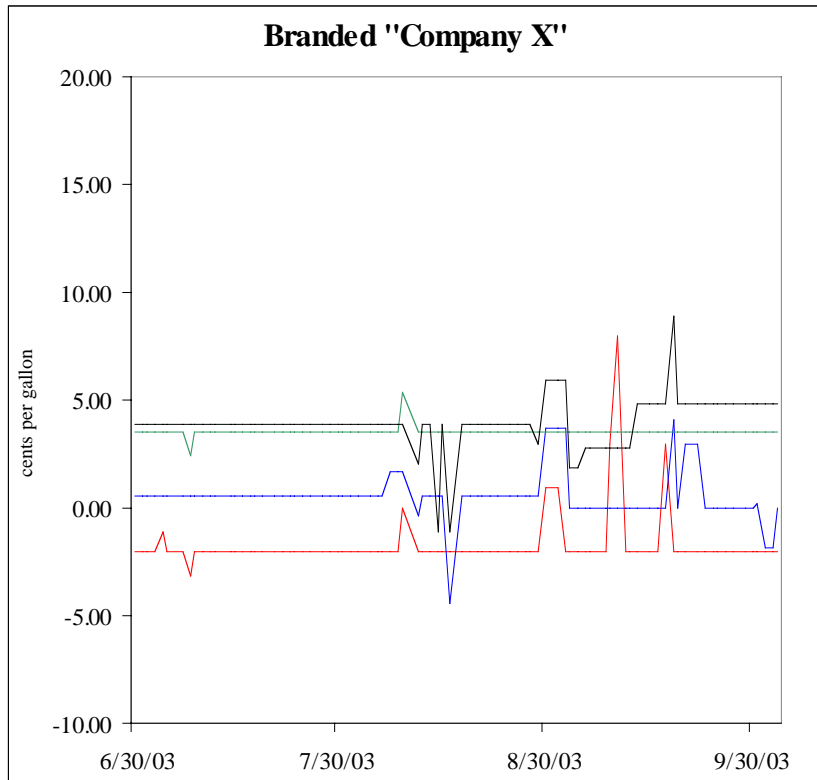
Diesel Spatial Rack Spreads

June 30, 2003 through October 4, 2003



California Gasoline Spatial Rack Spreads

June 30, 2003 through October 4, 2003

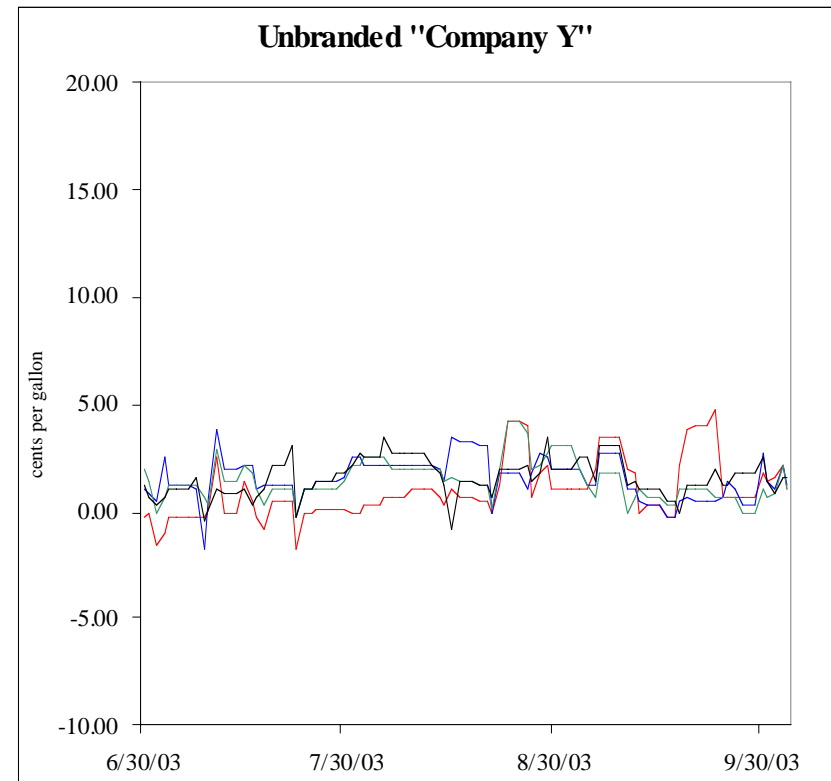
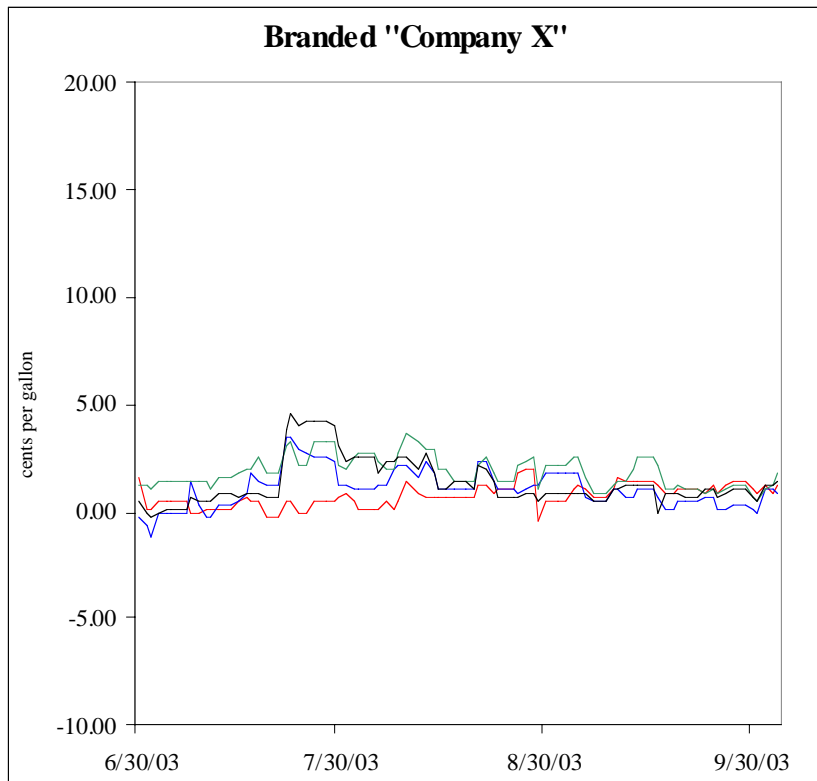


— Colton – Los Angeles
— Imperial – Los Angeles

— Barstow – Los Angeles
— San Diego – Los Angeles

CARB Diesel Spatial Rack Spreads

June 30, 2003 through October 4, 2003



— Colton – Los Angeles
— Imperial – Los Angeles

— Barstow – Los Angeles
— San Diego – Los Angeles

Conclusions

- Spatial price differentials in southern California wholesale gasoline markets do not regularly accord with transportation tariffs.
- Neither do they accord with any simple version of market power.
- Complicating factors include branded contracts, administrative preferences, discounting, geographic irreversibilities, and logistical lags.